

Abstract Submitted
for the DFD15 Meeting of
The American Physical Society

Dynamics of Spreading on Micro-Textured Surfaces ALIREZA MOHAMMAD KARIM, University of California, Los Angeles, JONATHAN ROTHSTEIN, UMassAmherst, PIROUZ KAVEHPOUR, University of California, Los Angeles — Ultrahydrophobic surfaces, due to their large water-repellency characteristic, have a vast variety of applications in technology and nature, such as de-icing of airplane wings, efficiency increase of power plants, and efficiency of pesticides on plants, etc. The significance of ultrahydrophobic surfaces requires enhancing the knowledge on the spreading dynamics on such surfaces. The best way to produce an ultrahydrophobic surface is by patterning of smooth hydrophobic surfaces with micron sized posts. In this research, the micro-textured surfaces have been fabricated by patterning several different sizes of micro-textured posts on Teflon plates. The experimental study has been performed using forced spreading with Tensiometer to obtain the dependence of dynamic contact angle to the contact line velocity to describe the spreading dynamics of Newtonian liquids on the micro-textured surfaces. The effect of the geometrical descriptions of the micro-posts along with the physical properties of liquids on the spreading dynamics on micro-textured Teflon plates have been also studied.

Alireza Mohammad Karim
University of California, Los Angeles

Date submitted: 01 Aug 2015

Electronic form version 1.4